

EXHIBIT “J”

ROY ASSET HOLDING SE
CONSOLIDATED FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2020

2.6.4 Intellectual property

2.6.4.1 Trademarks

The company believes that the "ROY" brand and Klingenberg or KeraClean are an essential factor for its successful business activities on national and international markets. For this reason, ROY must continue to strengthen the brand perception of its brands. To protect the "ROY" brand, the Company has already registered its trademarks and intends to register them as trademarks in other countries as well. In addition, the Klingenberg brand is protected. Further trademarks have already been protected for the European and American markets.

2.6.4.2 Patents

Siu Fung Ceramics (Beijing) Sanitary Ware Co., Ltd. (SFC) applied for a patent (patent name: "A kind of a toilet") for a universal toilet adapter on 23 January 2014. The patent was approved on 5 November 2014. The patented adapter enables the installation of a toilet that can be designed with both floor and wall drainage using different PVC pipes. The toilet installation with floor drain can be carried out according to the Chinese standard with a connection pipe of 305 mm and 400 mm diameter or via another non-standard connection pipe using different sized PVC pipes. The connection pipe of toilets with floor drain can be converted into a connection for toilets with wall drain. The toilets can therefore be installed with both vertical and horizontal drain pipes.

The information on SFC's patent can be summarised as follows:

Patent holder	Siu Fung Ceramics (Beijing) Sanitary Ware Co. , Ltd.
Patent designation	A kind of toilet
Inventor	Siu Fung Siegfried Lee, Sikun Jiang
Patent number	ZL 2014 2 0044813.6
Area	PRC
Date of the patent application	23 January 2014
Date of patent approval ⁵	. November 2014
Protection period until	23 January 2034

Arrangements were made with White Horse to transfer this patent from Siu Fung Ceramics (Beijing) Sanitary Ware Co, Ltd. to LLH by 30 June 2017. The reassignment was made to Ms. Wen in May 2017 and Ms. Wen has contractually agreed to transfer this patent to the holding company of ROY Asset Holding SE. The transfer process was legally started, but due to COVID-19, the transfer could not be completed until now.

2.6.4.3 Domains

www.roykeramik.de
 www.royasset.de
 www.royasset.eu
 www.dekoramik.de
 www.klingenberg-dekoramik.de



US 20050108820A1

(19) **United States**(12) **Patent Application Publication**
Li(10) **Pub. No.: US 2005/0108820 A1**(43) **Pub. Date: May 26, 2005**(54) **SANITARY PURGING APPARATUS**(52) **U.S. Cl. 4/662**(76) **Inventor: Zhaofeng Li, Beijing (CN)**

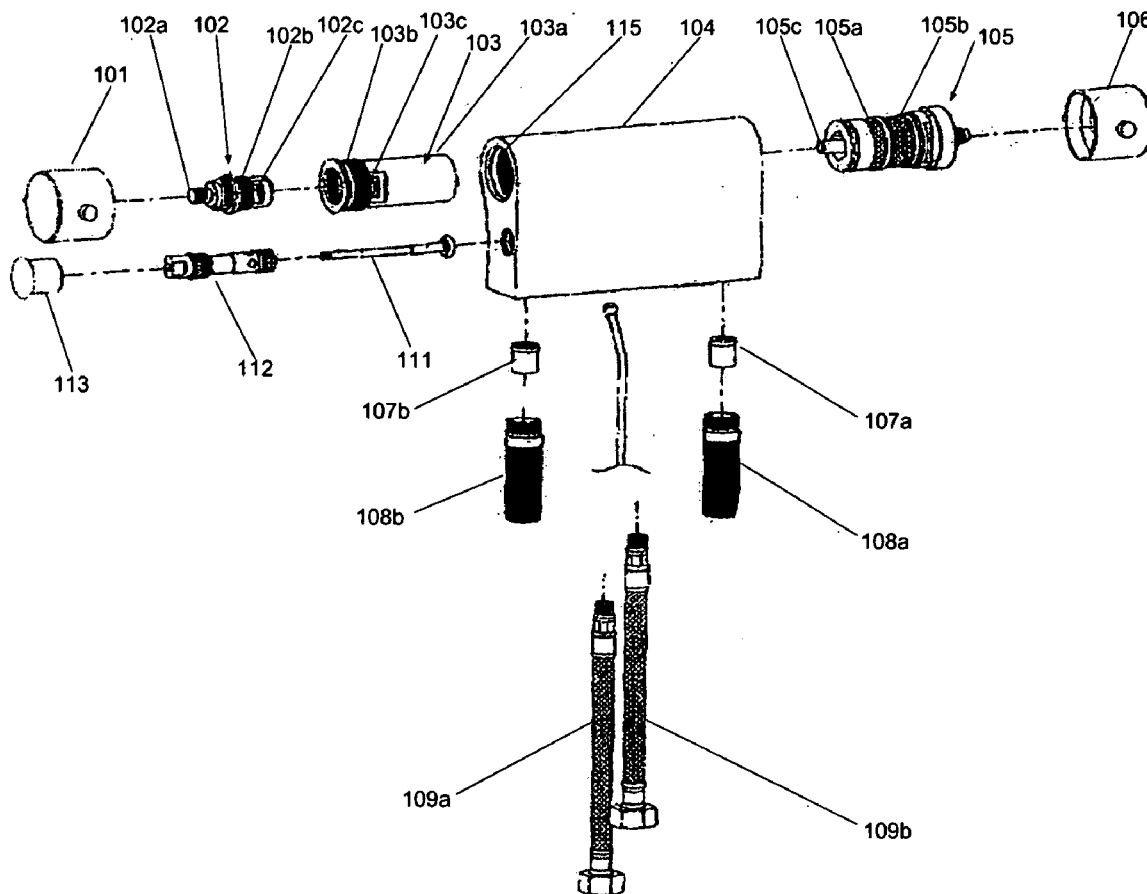
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(21) **Appl. No.: 10/889,174**(22) **Filed: Jul. 13, 2004**(30) **Foreign Application Priority Data**

Nov. 25, 2003 (CN) 2003-201221403

Publication Classification(51) **Int. Cl.⁷ E03C 1/01; A47K 4/00**(57) **ABSTRACT**

The present invention provides a sanitary cleaning device or apparatus that includes a basin, a temperature controller, and a flow controller. The temperature controller supplies water at a predetermined temperature to the flow controller, while the flow controller manages the water flow to a sprayer located in the basin. The present invention also provides a flow controller connected to a transversely-oscillating sprayer and a longitudinally-oscillating sprayer, both located in the basin. Furthermore, a water distributor may be used to divide the flow between the transversely-oscillating sprayer and the longitudinally-oscillating sprayer. A housing may be disposed on the rear portion of the rim of the basin to house the temperature controller, the flow controller, and the water distributor. The present invention may also include a cover for the basin and a sitting ring for the basin rim.



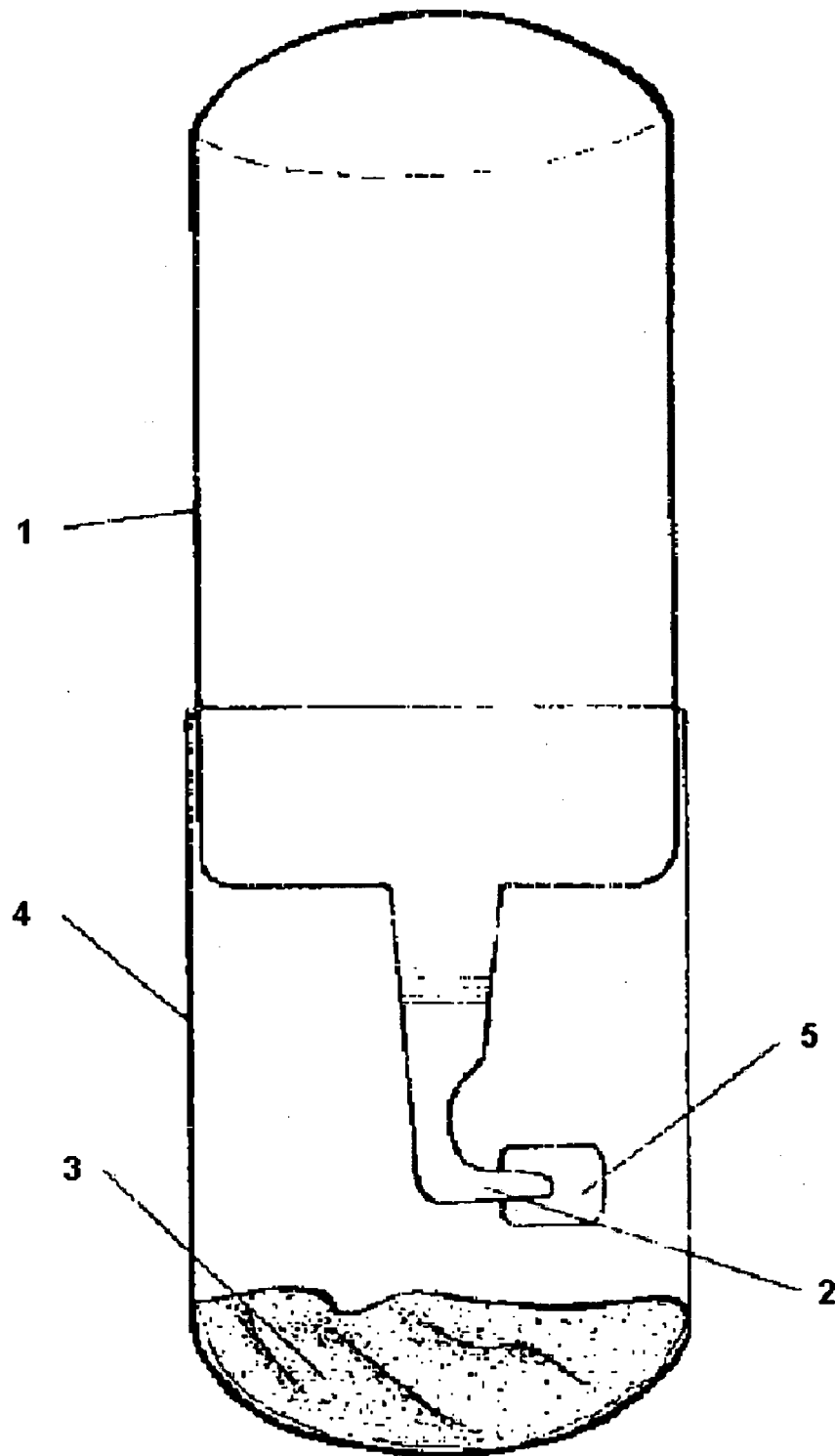


FIGURE 1

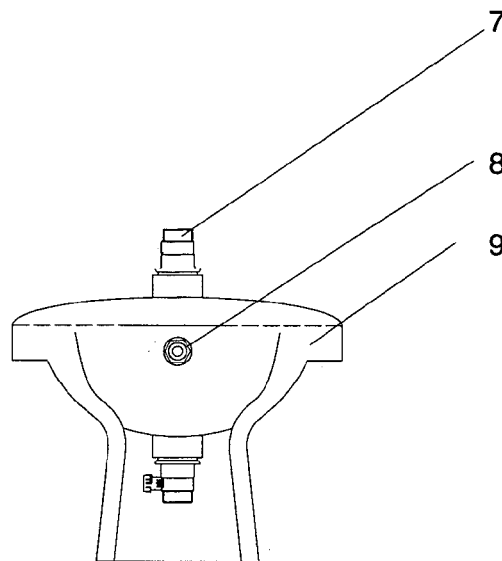


FIGURE 2

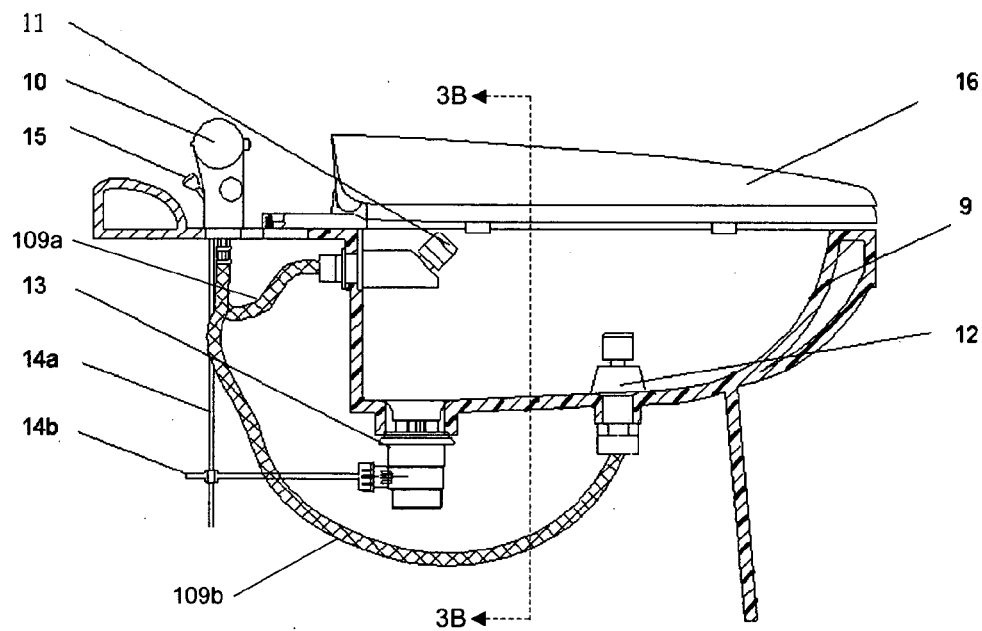


FIGURE 3A

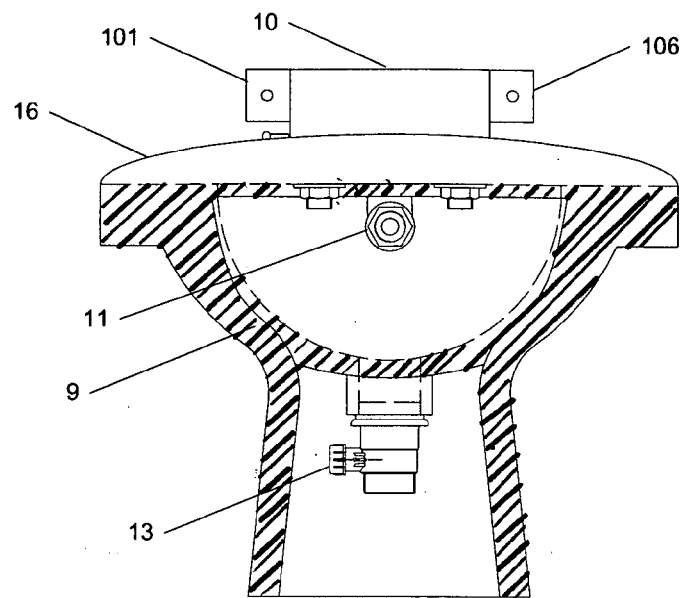


FIGURE 3B

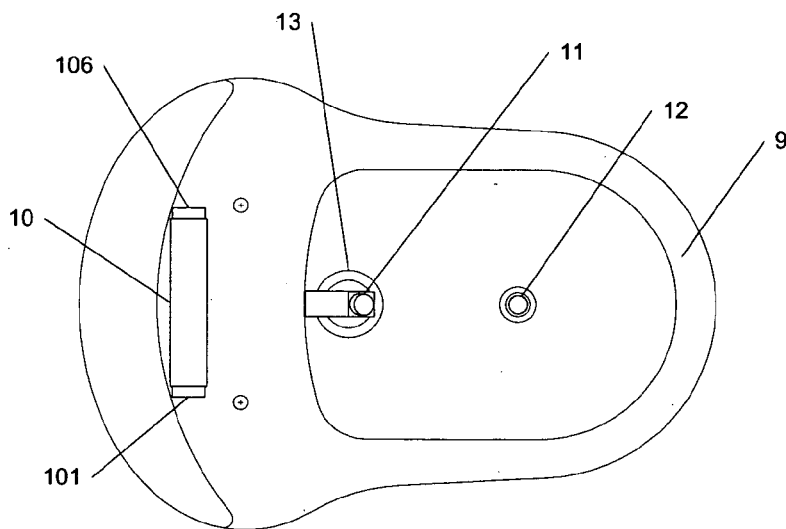


FIGURE 3C

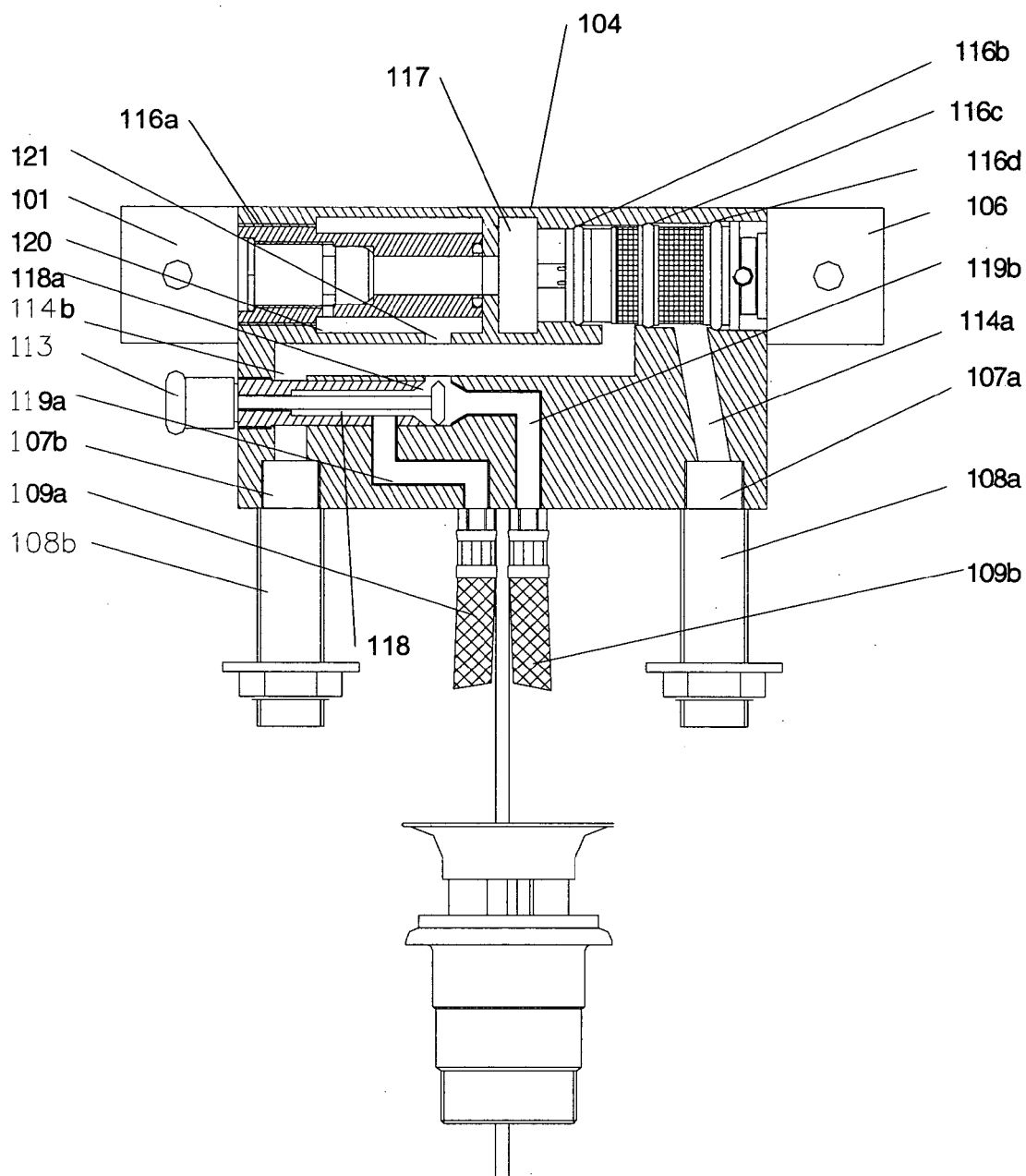


FIGURE 4A

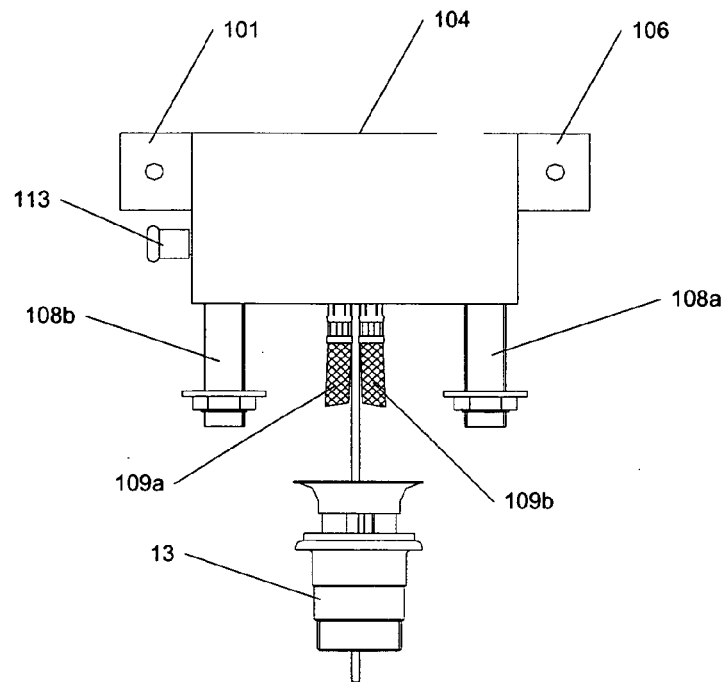


FIGURE 4B

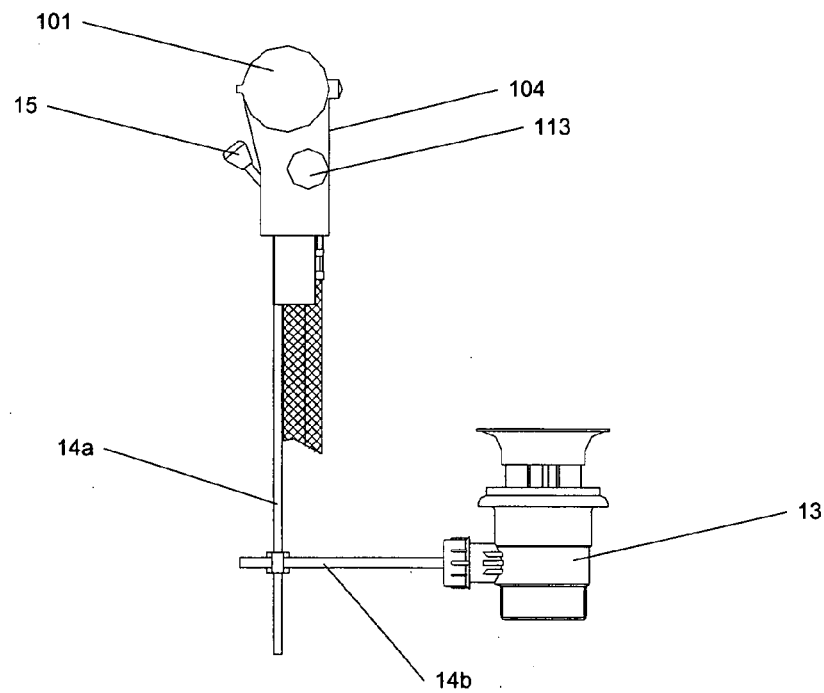


FIGURE 4C

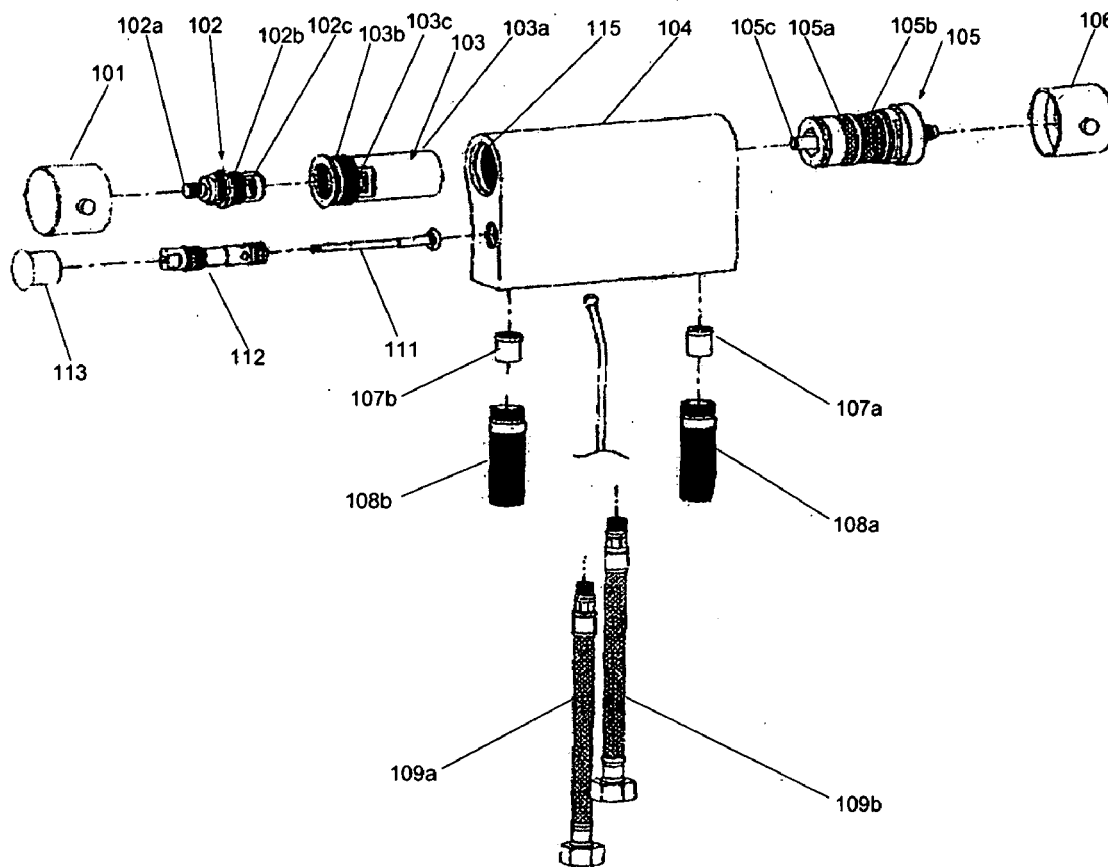


FIGURE 5

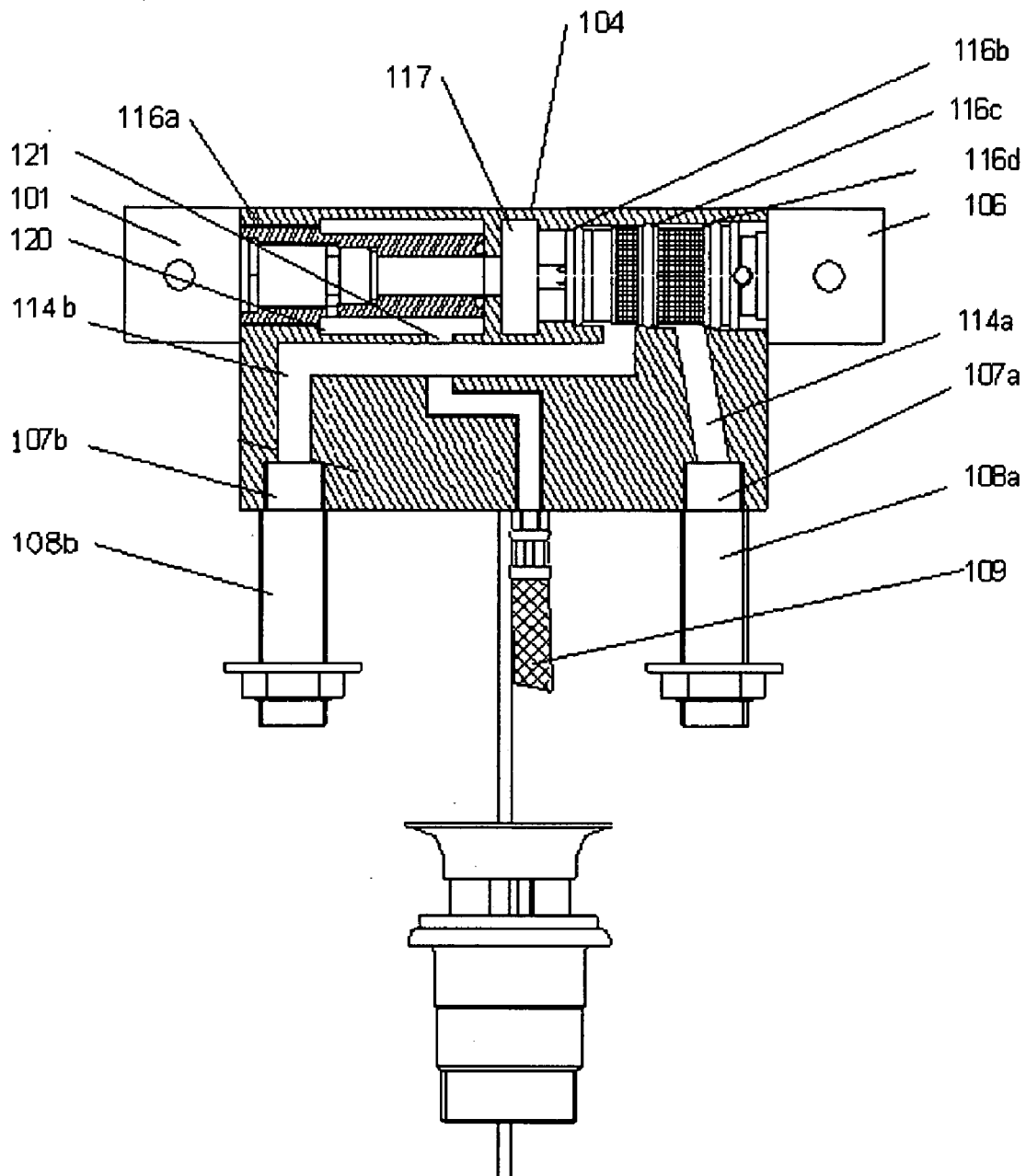


FIGURE 6

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SANITARY PURGING APPARATUS

FIELD OF THE INVENTION

[0001] The present invention relates to a sanitary appliance, particularly to a body purging or cleaning apparatus for cleaning a person after defecation and/or urination.

BACKGROUND OF THE INVENTION

[0002] As commonly used in bathrooms, e.g., after defecation and urination, people employ toilet paper to clean themselves. However, as individuals may themselves be infected by disease or parasites, the use of toilet paper alone is not at all sanitary. As a matter of fact, it is not satisfactorily effective to clean a human body with just toilet paper. Furthermore, discarded toilet paper could clog the drainage.

[0003] A conventional cleaning or purging apparatus is set forth in Chinese utility model No. 89219065.5, entitled "A Portable Apparatus for Purging a Human Body". As shown in **FIG. 1** of the Drawings, the cleaning apparatus therein includes a tank 1, a sprayer 2, a foam plastic plug 5 and a cylindrical enclosure 4. The sprayer 2 is screwed onto the tank 1, which is made from a flexible plastic and consists of an upper shell and a lower shell both of which are engaged or sealed tightly with each other. The sprayer 2 is inserted into the foam plastic plug or socket 5, which is used for cleaning or rubbing the sprayer 2. Some napkins 3 may be placed in the enclosure 4. The tank 1 has a section shaped elliptically. Naturally, the tank 1 is used for containing water, which is often kept at a substantially constant temperature, e.g., when the tank is carried close to the body. Though the conventional cleaning apparatus of **FIG. 1** is somewhat effective in cleaning, it is still deemed generally only as a rudimentary device. Particularly, it is disadvantageous in that it is of primitive construction and cannot be used conveniently and widely. Further, there is no warm water generated for users.

[0004] As people grow wealthier, more elaborate cleaning apparatuses have evolved from a so-called luxurious appliance to a routine necessity for all. With reference now to **FIG. 2** of the Drawings, there is illustrated another conventional cleaning apparatus, which includes a toilet basin 9 and a tap 7 disposed on a rear portion of the rim of the basin 9. The more elaborate conventional cleaning apparatus is, however, nonetheless disadvantageous in that:

[0005] (1) When the basin 9 is installed in a bathroom, it is usually placed against a wall. A user is then forced to seat himself on the basin facing the wall, cleaning himself by adjusting the tap, which abuts the wall. Since the tap is not disposed conveniently for front-facing use, it is awkward and inconvenient. Further, there is no mechanism for controlling the water temperature automatically.

[0006] (2) Additionally, since the basin is not provided with a sanitary cover, the user is forced to seat himself directly on the rim of the potentially unclean basin to clean himself. Most users feel quite uncomfortable and perhaps disgusted, as the basin is made of a ceramic material.

[0007] (3) Also, the tap 7 has a sprayer 8 mounted with a predetermined and set orientation, which is not adjustable to clean or spray in a desired direction, forcing the person to accommodate to the device's limitations.

SUMMARY OF THE INVENTION

[0008] To overcome the disadvantages of the prior art as described above, the present invention provides a sanitary cleaning device or apparatus that includes a basin, a temperature controller, and a flow controller. The temperature controller supplies water at a predetermined temperature to the flow controller, while the flow controller manages the water flow to a sprayer located in the basin. The present invention also provides a flow controller connected to a transversely-oscillating sprayer and a longitudinally-oscillating sprayer, both located in the basin. The user may specify a desired water temperature by turning a handwheel connected to the temperature controller. A handwheel may also be connected to the flow controller to manage the amount of water flowing through the sprayers. Furthermore, a water distributor may be used to divide the flow between the transversely-oscillating sprayer and the longitudinally-oscillating sprayer. A housing may be disposed on the rear portion of the rim of the basin to house the temperature controller, the flow controller, and the water distributor. The present invention may also include a cover for the basin and a cushion ring for the basin rim.

[0009] Additional embodiments are further defined in the specification and also set forth in the dependent claims.

[0010] Compared with the prior art, the present invention is advantageous in that:

[0011] (1) The cleaning apparatus is provided with an easily adjustable water-temperature controller permitting control of the output temperature by means of rotation of a handwheel. The temperature can thus be kept constant during use. Additionally, the user will seat himself or herself on the basin and face opposite to the building wall. In other words, the user will not be forced to face the wall to operate the controls. As the water temperature is set to a predetermined value, users can readily adjust and control the direction of the water flow by rotating a flow-adjusting wheel.

[0012] (2) The water flow can be adjusted manually and simply by means of rotation of the flow-adjusting hand-wheel.

[0013] (3) A water distributor distributes the water flow to a transversely-oscillating sprayer and a longitudinally-oscillating sprayer so that the sprayers can direct the flow as per the user's wishes and for subsequent usage.

[0014] (4) The apparatus has a cover used for keeping the basin clean and includes a cushion ring for seating a user comfortably.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] **FIG. 1** schematically illustrates the conventional cleaning device set forth in Chinese utility model No. 89219065.5;

[0016] **FIG. 2** schematically illustrates another conventional cleaning apparatus;

[0017] **FIGS. 3A, 3B** and **3C** schematically illustrate a cleaning apparatus according to the present invention, where **FIG. 3A** is a side cross-sectional view, **FIG. 3B** is a front cross-sectional view, and **FIG. 3C** is a top view of the present cleaning apparatus without the basin cover;

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[0018] FIGS. 4A, 4B and 4C schematically illustrate a flow controller and temperature controller according to the present invention, where FIG. 4A is a front cross-sectional view, FIG. 4B is a front view, and FIG. 4C is a side view of the flow controller and temperature controller of the instant invention;

[0019] FIG. 5 is an exploded view of the flow controller and temperature controller of the present invention; and

[0020] FIG. 6 illustrates a front cross-sectional view of another preferred embodiment.

DETAILED DESCRIPTION OF THE INVENTION

[0021] Various aspects of the invention are described in detail in the following sections. The use of sections is not meant to limit the invention. Each section can apply to any aspect of the invention. In this application, the use of "or" means "and/or" unless stated otherwise.

[0022] With reference now to FIGS. 3A, 3B and 3C of the Drawings, there is illustrated a cleaning device or apparatus according to the present invention, which includes a toilet basin 9, an adjustor 10 disposed on a rear portion of the rim of the basin 9, a transversely-oscillating sprayer 11 mounted to a rear wall of the basin 9, and a longitudinally-oscillating sprayer 12 mounted on the bottom thereof. The adjustor 10 has a housing 104 (shown in FIG. 5) provided with two outlets connected, respectively, to the sprayers 11 and 12 via conduits, discussed further hereinbelow. The adjustor 10 includes a temperature controller, a flow controller, and a water distributor, in addition to the housing 104. As also shown in FIG. 5, the aforementioned temperature controller includes a central temperature controller unit (CTU) 105 and a temperature controller handwheel 106. The aforementioned water distributor includes a distributor valve 111, a valve housing 112, and a distributor pull 113. The aforementioned flow controller includes a flow-adjusting handwheel 101, a central flow controller unit (CFU) 102 and a valve casing 103. The aforementioned housing 104 for the adjustor 10 includes a draining switch 15 at a side thereof, as illustrated in FIG. 3A, which is connected to a longitudinal or elongated draining rod 14a engaged with a transverse draining rod 14b, which is, in turn, anchored to a stopper mechanism 13 for closing the drainage. Therefore, a user can open or close the drainage by means of operating the draining switch 15. The basin 9 has a cover 16, which is preferably provided with a cushion ring for seating the user so that he or she would feel comfortable and the cleaning apparatus could be kept clean.

[0023] With reference now to FIGS. 4A, 4B, 4C, and 5, the housing 104 with the temperature controller has an upper portion provided with a first receiving hole 115 bored through from the left side to the right side of the housing. The valve casing 103 is received in the first receiving hole 115, which has a first recess 116a for passing the body of the valve casing 103a and tightly engaging the casing fitting 103b thereof. The valve casing 103 is hollow in that the casing body 103a has a casing bore 103c. The central flow controller unit 102 includes a first fitting 102a, a second fitting 102b and a valve body 102c, which are all preferably made into a single-piece member. The valve body 102c is formed with a central bore 102d having a diameter equal to that of the casing bore. As shown in FIG. 5, the central flow

controller unit 102 is inserted into the valve casing 103. The second fitting 102b is engaged tightly with the casing fitting 103a, and is rotatable axially in and about the casing fitting 103a, which can change the area over which the central bore 102d and the casing bore 103c coincide with each other, so that the water flow can be adjusted. The first fitting 102a of the central flow controller unit 102 is connected to the flow-adjusting handwheel 101, which drives the rotation of the central flow controller unit 102, which changes the area over which the central bore 102d and the casing bore 103c coincide with each other for adjusting the water flow.

[0024] It should be understood that a commercially-available central temperature controller unit 105 includes a hot water filter layer 105a for introducing a hot water stream, a cold water filter layer 105b for introducing a cold water stream, and an outlet 105c for outputting, at a predetermined temperature, a mixture of the hot water and the cold water as introduced. As shown in FIG. 4A, the central temperature controller unit 105 is received in the receiving hole 115 of the housing 104, which has second, third and fourth recesses 116b, 116c and 116d for accommodating the central temperature controller unit 105 snugly therein. Particularly, the second and third recesses 116b and 116c admit the hot water stream only to the hot water filter layer 105a, and none of the hot water to the recess 117 and the cold water filter layer 105b. The third and fourth recesses 116c and 116d admit the cold water stream only to the cold water filter layer 105b. As shown further in FIG. 4A, the central temperature controller 105 is located on the right side of the valve casing 103. The central temperature controller 105 and the valve casing 103 are not in direct contact, and the recess 117 is sandwiched therebetween. A hot water passage 114b is provided under the hot water filter layer 105a of the housing 104, while a cold water passage 114a is placed under the cold water filter layer 105b.

[0025] The left and right sides of the housing 104 have two openings for connecting the cold water passage 114b and the hot water passage 114a, respectively. A cold water conduit 108a and a hot water conduit 108b, respectively, are inserted into the openings. Check valves 107a and 107b are disposed respectively in the upper ends of the cold water conduit 108a and the hot water conduit 108b so as to prevent the water flowing therethrough from flowing back.

[0026] The housing 104 includes a water output ring 120 connected to the casing bore 103c and a first longitudinal water output passage 121, under which a second receiving hole 118 is provided. A distributor valve 111 is tied to a water distributor pull 113 via the valve casing 112. The distributor valve 111 and the valve casing 112 are received in the second receiving hole 118, with the latter connected to the second receiving hole. The water distributor valve 111 is moved transversely in the end portion 118a of second receiving hole 118. The end portion of the distributor valve 111 is preferably shaped, in section, like a right hexagon with an upper salient and a lower salient. The end portion 118a of the second receiving hole 118 has a top portion connected to the first water output passage 121, a left portion connected to the second water output passage 119a, and a right portion connected to the third water output passage 119b. The frontal surface of the end portion 118a is inclined at the same degree as the frontal face of the distributor valve 111. The distributor valve 111 has a height greater than the general diameter of the second receiving hole 118 but less than the

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height of the end portion **118a**. As the distributor pull **113** is moved to the left, the distributor valve **111** slides in the same direction until it abuts against the left side wall of the end portion **118a** so as to prevent water from flowing into the third water output passage **119a** through the left portion of the end portion **118a**. Likewise, as the distributor pull **113** is moved to the right, the distributor valve **111** slides in this direction until it abuts against the right side wall of the end portion **118a** so as to prevent water from flowing into the fourth water output passage **119b** through the right portion of the end portion **118a**. When the distributor valve **111** is located on a midway along the end portion **118a**, water is allowed to flow into a third water output passage **119a** and a fourth water output passage **119b** concurrently. The third water output passage **119a** and the fourth water output passage **119b** are extended under the housing **104** for respective connections with the first water output conduit **109a** and the second water output conduit **109b**. As shown in **FIG. 3A**, the first water output conduit **109a** is connected to the transversely-oscillating sprayer **11**, while second water output conduit **109b** connected to the longitudinally-oscillating sprayer **12**.

[0027] With reference now to **FIG. 6**, there is illustrated another preferred embodiment of the present invention. In this embodiment, the cleaning apparatus differs slightly from that shown and illustrated in connection with **FIGS. 4A-4C**. The valve casing **103** and the central flow controller unit **102** may be inserted into the left portion of the first receiving hole **115** of the housing **104**, with the central temperature controller **105** being placed in the right portion thereof. However, in this embodiment, the water output conduit **109** may be connected directly with the casing bore **103c** of the valve casing **103**, and connected to the transversely-oscillating sprayer and/or the longitudinally-oscillating sprayer for the purpose of the cleaning.

[0028] The detailed description is not intended to limit the scope of the invention. Those skilled in the art could contemplate any other alternative embodiments that should be deemed as falling into the scope of protection as claimed.

What is claimed is:

1. A cleaning device, said device comprising:
 - a basin,
 - a temperature controller connected to a hot water supply and a cold water supply,
 - a flow controller connected to said temperature controller, said temperature controller supplying water to said flow controller at a specified temperature, and
 - at least one sprayer located in said basin and connected to said flow controller.
2. The cleaning device according to claim 1, wherein said flow controller comprises:
 - a valve casing with a casing bore, and
 - a central flow controller with a flow bore, said central flow controller moving within the casing bore of said valve casing, and changing an area of overlap between said flow bore and said casing bore to adjust water flow.

3. The cleaning device according to claim 1, further comprising:

- a housing disposed at the rear of said basin, having at least one receiving hole therethrough, and holding said flow controller and said temperature controller therein.

4. The cleaning device according to claim 3, said housing further comprising:

- a cold water passage therein connected to said cold water supply, and
- a hot water passage therein connected to said hot water supply.

5. The cleaning device according to claim 1, further comprising:

- a first check valve at a first interface with said cold water supply, and
- a second check valve at a second interface with said hot water supply.

6. The cleaning device according to claim 1, further comprising:

- a cover for said basin, and

- a sitting ring across the rim of said basin.

7. A cleaning device, said device comprising:

- a basin,
- a flow controller connected to a water supply,
- a transversely-oscillating sprayer located in a first transverse position within said basin and connected to said flow controller, and
- a longitudinally-oscillating sprayer located in a second longitudinal position within said basin and connected to said flow controller, the outward flow of water through said sprayers being user adjustable.

8. The cleaning device according to claim 7, further comprising:

- a distributor valve,
- a distributor valve casing, and
- a distributor controller connected to said distributor valve through said distributor valve casing, said distributor controller adjusting water flow in a water passage between said transversely-oscillating sprayer and said longitudinally-oscillating sprayer.

9. The cleaning device according to claim 8, wherein said distributor valve has a hexagonally-shaped end with an upper salient and a lower salient, said hexagonally-shaped end moving in said water passage to adjust water flow between said transversely-oscillating sprayer and said longitudinally-oscillating sprayer.

10. The cleaning device according to claim 7, wherein said flow controller comprises:

- a valve casing with a casing bore, and
- a central flow controller with a flow bore, said central flow controller moving within the casing bore of said valve casing, and changing an area of overlap between said flow bore and said casing bore to adjust water flow.

11. The cleaning device according to claim 7, further comprising:

- a housing disposed at the rear of said basin, with a receiving hole therein holding said flow controller.

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12. The cleaning device according to claim 7, further comprising:

- a housing disposed at the rear of said basin, having a receiving hole therein connecting a first water output conduit from said flow controller to said transversely-oscillating sprayer and a second water output conduit from said flow controller to said longitudinally-oscillating sprayer.

13. The cleaning device according to claim 7, further comprising:

- a cover for said basin, and
- a sitting ring across the rim of said basin.

14. A sprayer device for use in a cleaning device, said sprayer device comprising:

- a transversely-oscillating sprayer in a first transverse position within said cleaning device,
- a longitudinally-oscillating sprayer in a second longitudinal position within said cleaning device, and
- a water distributor adjusting water flow between said transversely-oscillating sprayer and said longitudi-

nally-oscillating sprayer, the outward flow of water through said sprayers being user adjustable.

15. The sprayer device according to claim 14, wherein said water distributor comprises:

- a distributor valve,
- a distributor valve casing, and
- a distributor controller connected to said distributor valve through said distributor valve casing, said distributor controller adjusting water flow in a water passage between said transversely-oscillating sprayer and said longitudinally-oscillating sprayer.

16. The sprayer device according to claim 15, wherein said distributor valve has a hexagonally-shaped end with an upper salient and a lower salient, said hexagonally-shaped end moving in said water passage to adjust water flow between said transversely-oscillating sprayer and said longitudinally-oscillating sprayer.

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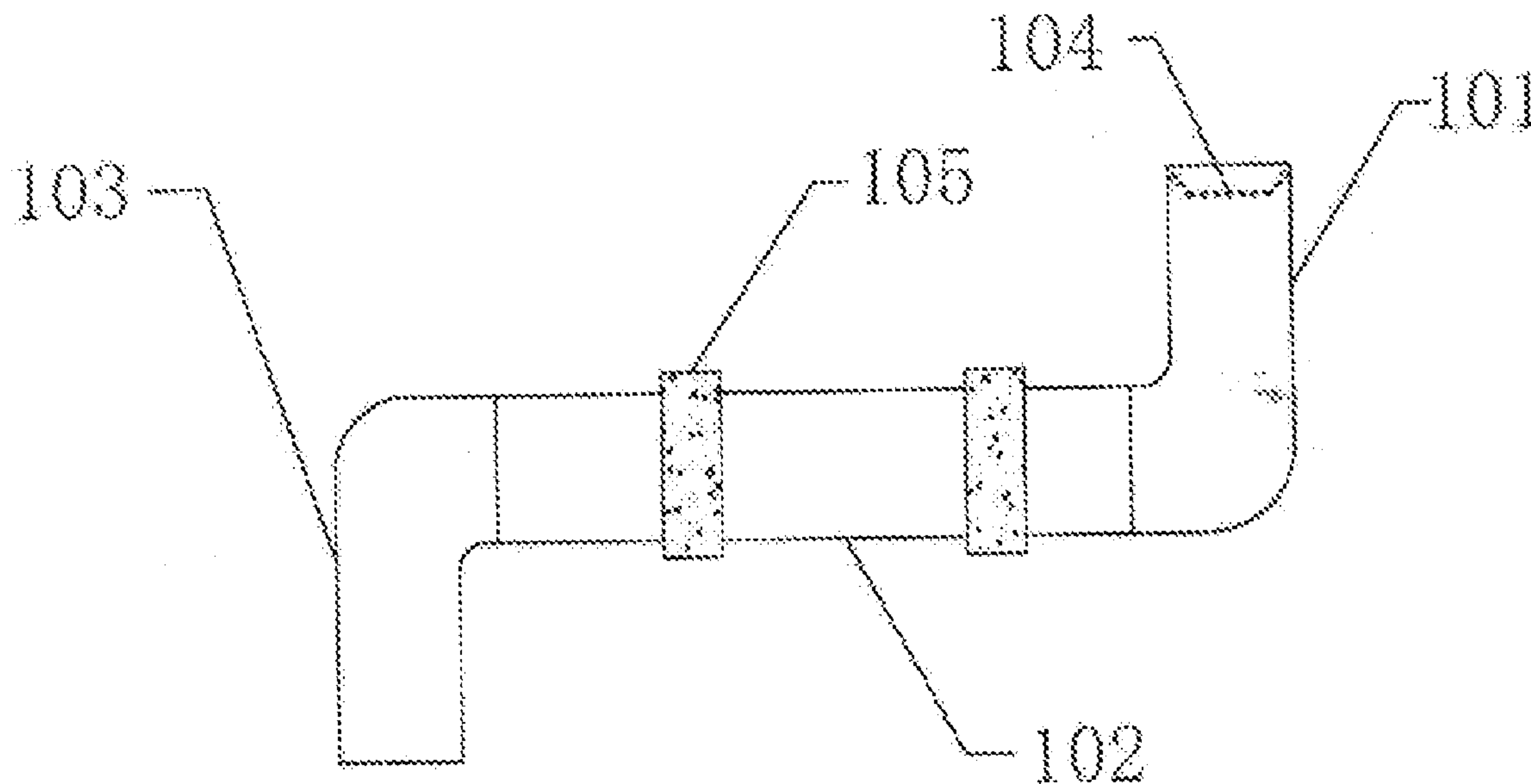
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(19) **United States**(12) **Patent Application Publication**
Lee et al.(10) **Pub. No.: US 2015/0330067 A1**(43) **Pub. Date: Nov. 19, 2015**(54) **TOILET**(71) Applicants: **Siu Fung Siegfried Lee**, Chino Hills,
CA (US); **Sikun Jiang**, Beijing (CN)(72) Inventors: **Siu Fung Siegfried Lee**, Chino Hills,
CA (US); **Sikun Jiang**, Beijing (CN)(21) Appl. No.: **14/604,551**(22) Filed: **Jan. 23, 2015**(30) **Foreign Application Priority Data**

Jan. 23, 2014 (CN) 201420044813.6

Publication Classification(51) **Int. Cl.**
E03D 11/17 (2006.01)(52) **U.S. Cl.**CPC **E03D 11/17** (2013.01)(57) **ABSTRACT**

The present invention relates to sanitary equipment, and more particularly to a toilet device. The toilet device includes a toilet and a connecting pipe, wherein the toilet is disposed with a sewage drainage hole and one end of the connecting pipe is connected to the sewage drainage hole, and the other end of the connecting pipe is connected to a sewer pipe. The embodiment of the present invention provides a toilet that no matter the toilet matches with the mounting distance of the bathroom or not, with the connecting pipe, we can connect the sewage drainage hole of the toilet with the sewer pipe smoothly, which solves the problem that the toilet may be unable to be installed or there may be a gap distance left between the toilet and the bathroom wall after the installation, which leads to a waste of space or an unpleasant appearance in the bathroom. Therefore, the present invention enables easy and convenient installation.



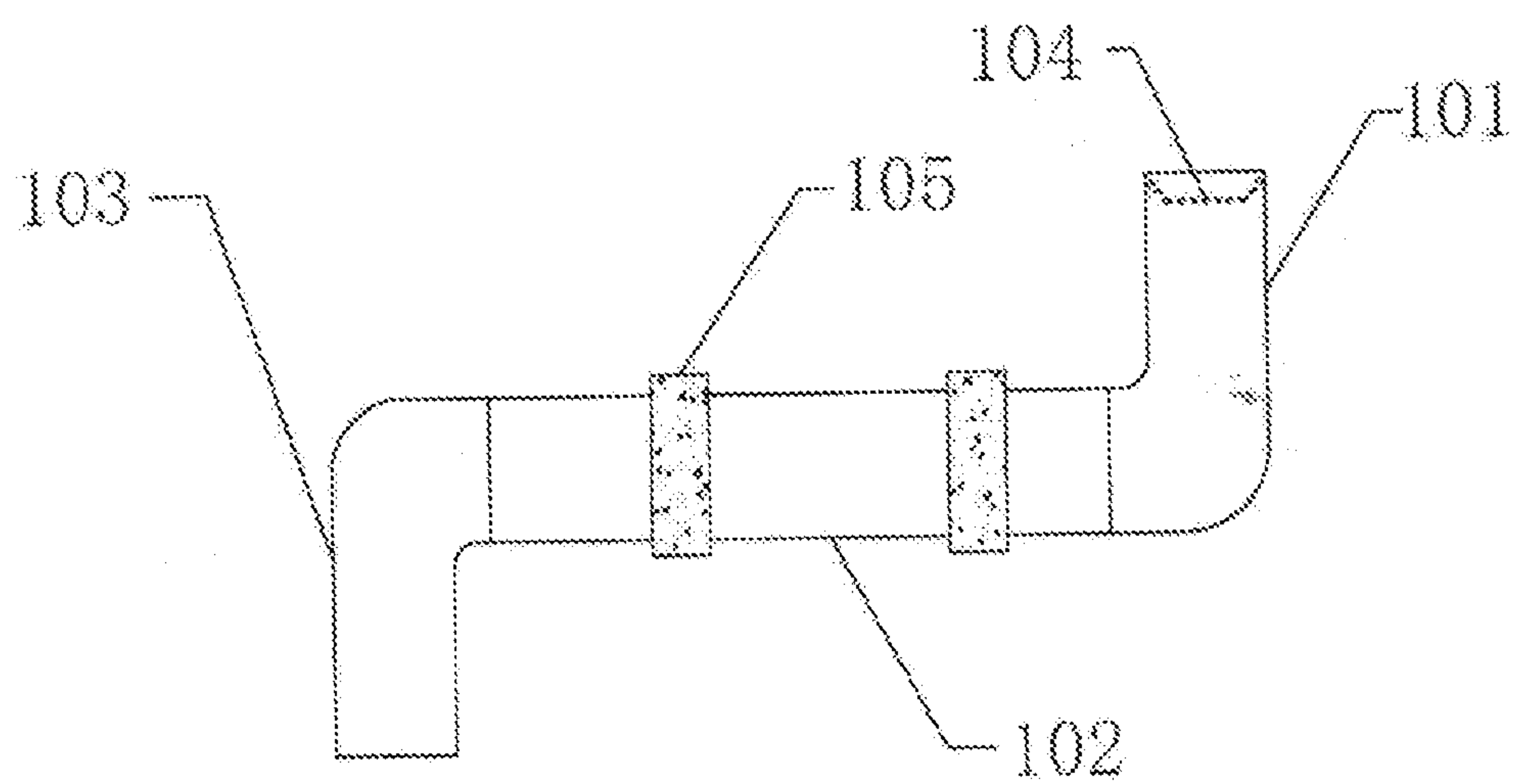


FIG. 1

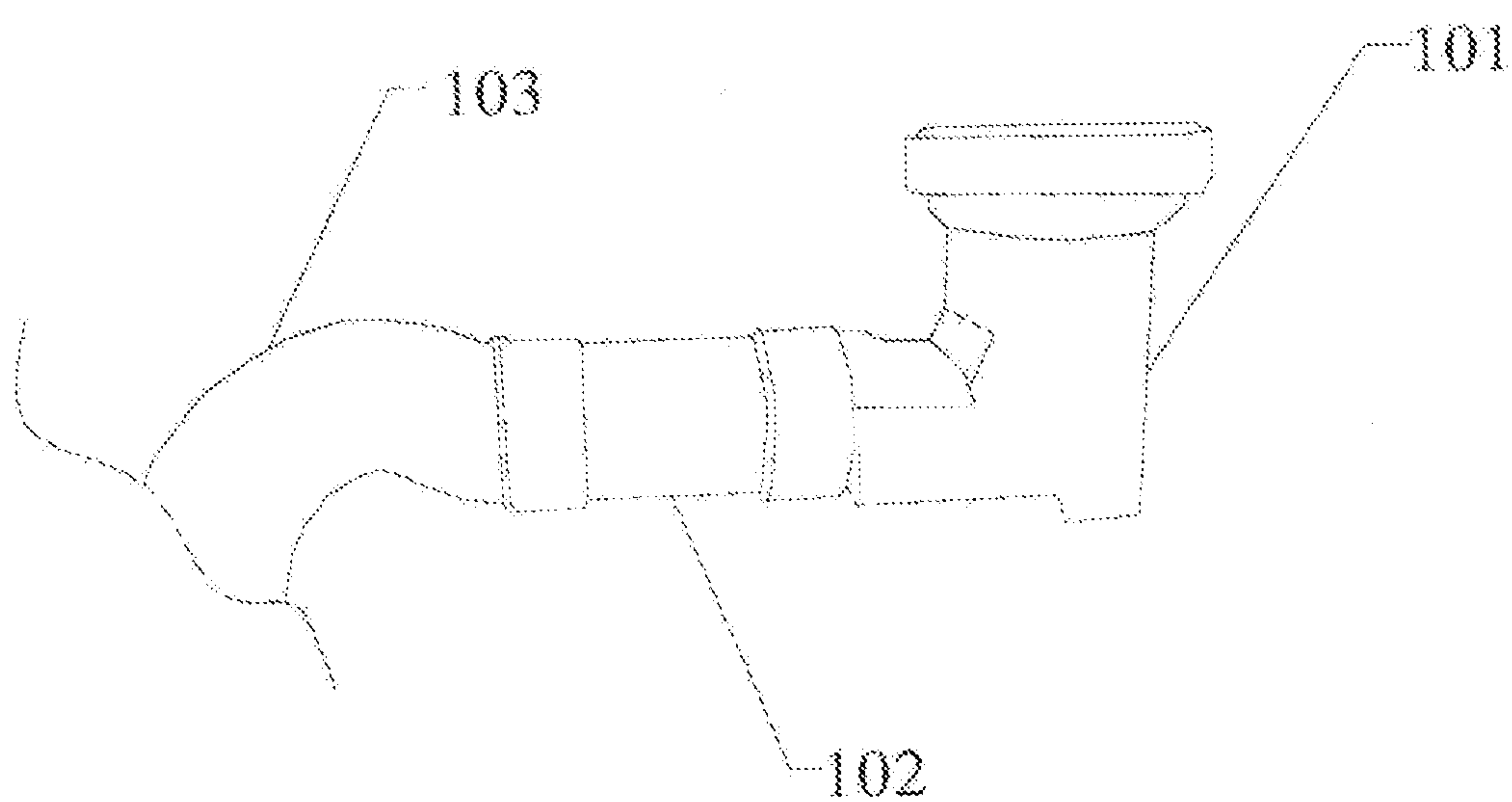


FIG. 2

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TOILET**FIELD OF THE INVENTION**

[0001] The present invention relates to a sanitary device, and more particularly to a toilet device.

BACKGROUND OF INVENTION

[0002] In a house renovation, there is a standard mounting distance for installing a toilet device. Meanwhile, a toilet device is designed to correspond the mounting distance.

[0003] Unfortunately, people usually don't know the mounting distance of their own toilet device, so the specification of the toilet device they bought often does not match with the ideal mounting distance to cause the toilet device they bought cannot be installed, or to cause there exist a gap distance between the toilet and the wall after the installation. Therefore, in the related art, the inconvenience in installation is a common defect.

SUMMARY OF THE INVENTION

[0004] The purpose of the present invention is to provide a toilet device in order to solve the problem of the toilet device in the prior art.

[0005] In one embodiment, the present invention provides a toilet device, which comprises a toilet and a connecting pipe.

[0006] The toilet is disposed with a sewage drainage hole.

[0007] One end of the connecting pipe is connected to the sewage drainage hole and the other end is connected to a sewer pipe.

[0008] The present invention provides a toilet device which comprises a toilet and a connecting pipe. During a toilet installation, if the specifications of a toilet do not match with the mounting distance of the bathroom, then one end of the connecting pipe can be used to connect to the sewage drainage hole of the toilet, and the other end of the connecting pipe can be used to connect to the sewer pipe, which realizes a smooth installation of the toilet. Therefore, the embodiment of the present invention provides a toilet that, whether the toilet match with the mounting distance of the bathroom or not, can connect the sewage drainage hole of the toilet with the sewer pipe smoothly via the connecting pipe, which solves the problem that the toilet may be unable to be installed, or the problem that there may be a gap distance left between the toilet and the wall after the installation, which leads to a waste of space or an unpleasant appearance in the bathroom. Thus, the toilet device of the present invention enables easy and convenient installation.

[0009] Optionally, the connecting pipe includes a first elbow pipe element whose one end is connected to the sewage drainage hole, a horizontal pipe element and a second elbow pipe element, in which both ends of the horizontal pipe element are respectively connected to one end of the first elbow pipe element and one end of the second elbow pipe element. An opening at one end of the first elbow pipe element far away from the horizontal pipe element is allocated to face in a direction opposite to a direction that an opening at one end of the second elbow pipe element far away from the horizontal pipe element is allocated to faces in.

[0010] Optionally, an external diameter of the first elbow pipe element is gradually reduced from one end of the first elbow pipe element far away from the horizontal pipe element toward the other end of the first elbow pipe element connected to the horizontal pipe element.

[0011] Optionally, a rubber cushion is disposed at one end of the first elbow pipe element far away from the horizontal pipe element.

[0012] Optionally, the horizontal pipe element is a PVC round pipe.

[0013] Optionally, a plurality of annular convex elements is disposed around an outer wall surface of the horizontal pipe element.

[0014] Optionally, the connecting pipe is a 90° elbow pipe.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] To clearly explain the technical solution of the present invention and that in the prior art, the following description briefly explains the drawings used in the explanation of the embodiments of the present invention or that in the prior arts. It is noted that the explained drawings are only part of the embodiments of the present invention. A person of ordinary skill in the art can obtain other drawings based on the drawings herein without offering creative efforts.

[0016] FIG. 1 is a structural view illustrating a connecting pipe of the toilet provided by the second embodiment of the present invention.

[0017] FIG. 2 is another structural view illustrating a connecting pipe of the toilet provided by the second embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0018] To clarify the objects, the technical solution and the advantages of the present invention, the detailed and complete description of the technical solution of the present invention are explained as follows. Based on the embodiments of the present invention, all other embodiments obtained by people with ordinary skills in the field without offering creative efforts should be considered to fall within the scope of protection of the present invention.

The First Embodiment

[0019] The present embodiment provides a toilet device which comprises a toilet and a connecting pipe. The toilet is disposed with a sewage drainage hole. One end of the connecting pipe is connected to the sewage drainage hole and the other end of the connecting pipe is connected to a sewer pipe.

[0020] The present invention provides a toilet device which comprises a toilet and a connecting pipe. During a toilet installation, if the mounting distance of the bathroom for installing a toilet does not match with the specification of the toilet, then one end of the connecting pipe can be used to connect to the sewage drainage hole of the toilet, and the other end of the connecting pipe can be used to connect to the sewer pipe, which realizes a smooth installation of the toilet. Therefore, the embodiment of the present invention provides a toilet that, whether the mounting distance of the bathroom matches with the toilet specification or not, can connect the sewage drainage hole of the toilet with the sewer pipe smoothly using the connecting pipe, which solves the problem that the toilet may be unable to be installed, or there may be a gap distance left between the toilet and the bathroom wall after the installation, which leads to a waste of space or an unpleasant appearance. Thus, the present invention enables convenient installation.

[0021] For better applications of the toilet device in the first embodiment of the present invention, and for more effectively

applying the present invention to the installation process, the present invention further provides a second embodiment based on the first embodiment. The second embodiment adds supplements and limitation to the first embodiment, which are elaborated and explained in detail as follows. Please refer to FIG. 1 and FIG. 2.

[0022] In order to make the process of the connecting pipe connecting to the sewage drainage hole and the sewer pipe easier, preferably, the connecting pipe of the present embodiment has the following structure: the connecting pipe includes a first elbow pipe element **101** whose one end is connected to the sewage drainage hole, a horizontal pipe element **102** and a second elbow pipe element **103**, in which both ends of the horizontal pipe element **102** are respectively connected to one end of the first elbow pipe element **101** and one end of the second elbow pipe element **103**. An opening at one end of the first elbow pipe element **101** far away from the horizontal pipe element **102** is allocated to face in a direction opposite to a direction that an opening at one end of the second elbow pipe element **103** far away from the horizontal pipe element **102** is allocated to face in.

[0023] It is noted that, based on the above structure, in the technical solution further advanced, in order to ensure that the toilet carries out good siphon effect while draining the sewage, optionally, the connecting part of the second elbow pipe element **103** and the horizontal pipe element **102** exhibits an upwardly curved trend (please refer to FIG. 2). This is set up to ensure the smooth realization of the siphon effect, and thus ensure the smooth sewage discharge.

[0024] In the present art, generally there are two kinds of method for discharging sewage, one of which is the downward discharge, in which the opening of the sewer pipe is disposed on the ground; the other method is the wall discharge, in which the opening of the sewer pipe is disposed on the wall. According to the regulations in the PRC National Standard GB6952-2005, siphon style downward discharge has two kinds of mounting distances: 305 mm and 400 mm. When a downward discharge toilet is being installed, the first elbow pipe element **101** is connected to the sewage drainage hole of the toilet (generally, the opening at one end of the first elbow pipe element **101** far away from the horizontal pipe element **102** is allocated to face in an upward direction), and the direction of the opening of the second elbow pipe element **103** is opposite to the direction of the opening of the first elbow pipe element **101**, so it is very suitable for connecting with the sewer pipe that is disposed on the ground. Therefore, the connecting pipe with the above-mentioned structure is very suitable for connecting the sewage drainage hole of the downward discharge toilet with the opening of the sewer pipe.

[0025] When a wall discharge toilet is being installed, the connecting pipe can be directly disposed with one elbow pipe element, more specifically, it can be disposed with a right angle elbow pipe element. One end of the right angle elbow pipe element is connected to the sewage drainage hole of the toilet, and the other end is connected to the opening of the sewer pipe disposed on the wall.

[0026] Additionally, the specific size of the connecting pipe can be set up according to the two different specifications of the downward discharge toilet. It is noted that, for a better effect of the installation, preferably, the first elbow pipe element **101** and the second elbow pipe element **103** can be set up vertically with respect to the horizontal pipe element **102**.

[0027] Additionally, since one end of the first elbow pipe element **101** far away from the horizontal pipe element **102** is

for connecting with the sewage drainage hole of the toilet, and most downward discharge toilets are of siphon style, so in order to discharge the sewage smoothly, and to install the first elbow pipe element **101** on the sewage drainage hole of the toilet easily, preferably, the external diameter of the first elbow pipe element **101** is gradually reduced from one end of the first elbow pipe element **101** far away from the horizontal pipe element **102** toward the other end of the first elbow pipe element **101** connected to the horizontal pipe element **102** (which is not shown in FIG. 1). In this way, in the sewage discharging process, the sewage discharging route is gradually reduced, and mass volume of sewage can be discharged smoothly, which ensures smoothness in the discharges of sewage. Besides, generally, most toilet structures have gradually reduced sewage drainage holes from top to bottom, so the first elbow pipe element **101** which possesses this kind of structure can be easily installed on the sewage drainage hole of the toilet.

[0028] In the process of the specific practice of the present invention, to ensure that the first elbow pipe element **101** can be easily connected to the sewage drainage hole of the toilet, and can have better sealing performance after the connection, preferably, in the present embodiment, a rubber cushion **104** is disposed on one end of the first elbow pipe element **101** far away from the horizontal pipe element **102**. The rubber cushion achieve a sealing effect and at the same time ensure that the course of connection between the first elbow pipe element **101** and the sewage drainage hole is a soft connection, which prevents damage to the horizontal pipe element **102**.

[0029] Additionally, to ensure the performance requirements of the horizontal pipe element **102**, preferably, the horizontal pipe element **102** is a PVC round pipe. After long-term use, which causes inevitably damage to the horizontal pipe element **102**, the performances of the horizontal pipe element **102** will decrease. When the horizontal pipe element **102** is subjected to hard collisions, the horizontal pipe element **102** is caused to rupture. To solve the problem, the present embodiment preferably provides a plurality of annular convex elements **105** disposed around the outer wall surface of the horizontal pipe element **102**. When the horizontal pipe element **102** is subjected to hard collisions, the annular convex elements will absorb the shock in advance, to some extent protecting the horizontal pipe element **102** from damage.

[0030] In summary, the toilet device provided by the embodiments of the present invention can apply different structures of the connecting pipes according to the different installation environment. It is suitable for both the installations of ground discharge (downward discharge) and wall discharge in the discharges of sewage. When performing ground discharge installation, apply the regulations in the PRC National Standard GB6952-2005, which include two kinds of mounting distances: 305 mm and 400 mm. A smooth installation of the toilet can be realized by applying the related structure and size of the connecting pipe base on the regulations in the PRC National Standard. When performing wall discharge installation, just set up the connecting pipe with a 90° elbow pipe and apply the related regulations in the PRC National Standard regarding the specific size of a 90° elbow pipe. Therefore, the toilet device of the present invention is very easy to use.

[0031] The above description should be considered as only the discussion of the preferred embodiments of the present invention, and cannot be used to limit the present invention.

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However, a person with ordinary skill in the art may make various modifications to the present invention. Any modifications, substitutions and improvement based on the spirit and principle of the present invention should still fall within the scope of protection of the present invention.

What is claimed is:

1. A toilet device, characterized by comprising:

a toilet provided with a sewage drainage hole;

a connecting pipe whose one end is connected to the sewage drainage hole and whose the other end is connected to a sewer pipe,

wherein the connecting pipe includes a first elbow pipe element whose one end is connected to the sewage drainage hole, a horizontal pipe element and a second elbow pipe element, in which both ends of the horizontal pipe element are respectively connected to one end of the first elbow pipe element and one end of the second elbow pipe element; an opening at one end of the first elbow

pipe element far away from the horizontal pipe element is allocated to face in a direction opposite to a direction that an opening at one end of the second elbow pipe element far away from the horizontal pipe element; an external diameter of the first elbow pipe element is gradually reduced from one end of the first elbow pipe element far away from the horizontal pipe element toward the other end of the first elbow pipe element connected to the horizontal pipe element, and a rubber cushion is disposed at one end of the first elbow pipe element far away from the horizontal pipe element, or wherein the connecting pipe is a 90° elbow pipe.

2. The toilet device as claimed in claim 1, wherein the horizontal pipe element is a PVC round pipe.

3. The toilet device as claimed in claim 2, wherein a plurality of annular convex elements is disposed around an outer wall surface of the horizontal pipe element.

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